Remarks:

Claims 42-48 and 50-93 are now pending in this application. Applicants have amended claims 42, 46, 47, 61, 62, 64, 66, 69, 70, 74-76, 78-80, 82, 83, 87, 88, 90, 92, and 93 to clarify the present invention. Applicants respectfully request favorable reconsideration of this application.

The Examiner rejected claims 42-46, 48, 50, 58, 66-74, 77-80, 83-87, and 90-93 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent 5,530,338 to Beckwith. The Examiner rejected claims 47, 75, and 88 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 6,577,108 to Hubert et al. The Examiner rejected claims 51 and 52 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 5,166,579 to Larsen et al. The Examiner rejected claims 53 and 54 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 6,011,389 to Andrei. The Examiner rejected claims 55 and 57 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent publication 2004/0012472 to Sasse et al. The Examiner rejected claim 56 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 4,591,963 to Retotar. The Examiner rejected claims 59 and 76 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 4,075,675 to Burkett et al. The Examiner rejected claim 60 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 4,081,741 to Palmer. The Examiner rejected claims 61-63 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 6,924,565 to Wilkins et al. The Examiner rejected claims 64, 65, and 89 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of Watson

et al. The Examiner rejected claims 81 and 82 under 35 U.S.C. § 103(a) as being unpatentable over Beckwith in view of U.S. patent 6,925,285 to Ghosh et al.

Beckwith does not disclose the invention recited in claims 42, 69, 83, and 92 since, among other things, Beckwith does not disclose a transformer and a tap changer arranged at each end of an insulated AC transmission cable. Rather, Beckwith discloses a system and method of paralleling tapchanging transformers arranged at one electric utility substation. This application is clear from col. 1, lines 6-11. Accordingly, Beckwith discloses a system in which all tapchanging transformers are arranged at one point of an AC power network. On the other hand, the claimed invention clearly relates to a method and system that includes a transformer and a tap changer at each end of an AC transmission cable that extends between two points connected to one or more power networks.

Additionally, Beckwith discloses transformers that provide a daisy chain of output load currents that are processed by each tapchanger control as pairs of currents. The load currents are balanced as desired regardless of whether or not transformer primaries are supplied in parallel, as described in the abstract. The Examiner cites Fig. 5 as disclosing a high voltage AC transmission cable system for transmitting power between two point each connected to one or more power networks. However, Fig. 5 illustrates a system in which load currents are obtained from current transformers 304 and 305, as described at col. 3, lines 66-67, and col. 4, lines 10-11. On the other hand, rather than balancing load currents, the claimed invention regulates an operating voltage level of an AC transmission cable, thereby minimizing losses due to reactive power transport.

Also, Beckwith does not disclose regulating an operating voltage of an AC transmission cable that extends between two points each connected to one or more power networks. In fact, Beckwith does not suggest an AC transmission cable at all. Rather, Beckwith only discloses high voltage busses 310 and 311. An AC transmission cable typically is buried in the ground on land or even in the sea and therefore is insulated in order to withstand the challenging environmental conditions. On the other hand, high voltage busses in a substation typically include naked metallic busbars. Special protection from environmental conditions is not required. The only surrounding material is normally some isolation in order to protect human operators working inside the substation. Furthermore, Beckwith does not disclose regulation of the voltage on the high voltage busses.

Furthermore, Beckwith does not address the problem of limited transmission length of an AC transmission cable due to losses. Accordingly, Beckwith does not suggest a solution to this problem. In particular, Beckwith does not disclose a solution that includes regulating an operating voltage on an AC transmission cable such that losses due to reactive power transport are minimized, as recited in the claims.

Additionally, transformers 306 and 307 disclosed by Beckwith and shown in Fig. 5, supply an AC voltage for the corresponding tapchanger controls 322 and 323, as described at col. 4, lines 27-30. Accordingly, these transformers could never be operated to regulate an operating voltage level of high voltage busses 310 and 311. This is particularly true since the transformers 306 and 307 are not directly connected to the busses.

In view of the above, Beckwith does not disclose all elements of the invention recited in claims 42-46, 48, 50, 58, 66-74, 77-80, 83-87, and 90-93. Since Beckwith does not disclose all elements of the invention recited in claims 42-46, 48, 50, 58, 66-74, 77-80, 83-87, and 90-93, the invention recited in claims 42-46, 48, 50, 58, 66-74, 77-80, 83-87, and 90-93 is not properly rejected under 35 U.S.C. § 102(b). For an anticipation rejection under 35 U.S.C. § 102(b) no difference may exist between the claimed invention and the reference disclosure. See Scripps Clinic and Research Foundation v. Genentech, Inc., 18 U.S.P.Q. 841 (C.A.F.C. 1984).

Along these lines, anticipation requires the disclosure, in a cited reference, of each and every recitation, as set forth in the claims. See Hodosh v. Block Drug Co., 229 U.S.P.Q. 182 (Fed. Cir. 1986); Titanium Metals Corp. v. Banner, 227 U.S.P.Q. 773 (Fed. Cir. 1985); Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986); and Akzo N.V. v. U.S. International Trade Commissioner, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986).

The combination of Beckwith and any of the secondary references does not suggest the claimed invention since, among other things, none of the combinations suggests an insulated high voltage AC transmission cable extending between two points, where each point is connected to one or more power networks, a transformer and tap changer connected at each end of the AC transmission cable to regulate voltage of the AC transmission cable on the power network side of transformer. Rather, Beckwith suggests load current balancing on load side of the tap changing units and a high voltage bus in a substation. Beckwith does not suggest the problem of limited transmission length or a solution to the problem that includes regulation of voltage to minimize losses due to reactive power transport. None of Hubert et al., Larsen et al.,

Andrei, Sasse et al., Retotar, Burkett et al., Palmer, Wilkins et al., Watson et al. or Ghosh et al. suggests these aspects of the claimed invention. Accordingly, the combination of Beckwith and any of these secondary references does not suggest the invention recited in claims 47, 51-57, 59, 60-65, 75, 76, 81, 82, 88 or 89.

In view of the above, the references relied upon in the office action do not disclose or suggest patentable features of the claimed invention. Therefore, the references relied upon in the office action do not anticipate the present invention or make the claimed invention obvious. Accordingly, Applicants submit that the claimed invention is patentable over the cited references and respectfully request withdrawal of the rejections. Accordingly, Applicants respectfully request favorable reconsideration of this case and issuance of the notice of allowance.

If an interview would advance the prosecution of this application, Applicants respectfully urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge insufficient fees and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully submitted,

Date: November 4, 2009

/Eric J. Franklin/
Eric J. Franklin, Reg. No. 37,134
Attorney for Applicants
Venable LLP
575 Seventh Street, NW
Washington, DC 20004
Telephone: 202-344-4936
Facsimile: 202-344-8300